

REMARKS/ARGUMENTS

Applicant has carefully reviewed and considered the Office Action mailed on April 17, 2006, and the references cited therewith.

Claims 1, 3, 14-15, 31, 36, 38-39, 42, and 46 are amended, no claims are canceled or added, and claims 17-30 were previously withdrawn; as a result, claims 1-46 are pending in this application.

Information Disclosure Statement

Applicant respectfully requests that a copy of the 1449 Form, listing all references that were submitted with the Information Disclosure Statement filed on May 4, 2006, marked as being considered and initialled by the Examiner, be returned with the next official communication.

§ 112 Rejection of the Claims

Claims 14 and 15 were rejected under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Applicant respectfully traverses the rejection as follows.

Applicant has endeavored to clarify the meaning of independent claim 14 and dependent claim 15 by amending the claims to recite "means for controlling current flow". Accordingly, Applicant respectfully request reconsideration and withdrawal of the 112 rejection of claims 14 and 15, as amended.

Claim Objections

Claim 42 was objected to because of the following informalities: The preamble of claim 42 states, "The display of claim 36". However, the claim is clearly meant to depend from claim 39.

Applicant has made appropriate correction to claim 42 by amending the claim to depend from independent claim 39 instead of claim 36. Similarly,

Applicant has amended claim 46 to depend from independent claim 39 instead of 36.

§ 102 Rejection of the Claims

Claims 1-5, 14-16, 31, 32, 36-41, and 46 were rejected under 35 USC § 102(b) as being anticipated by Cillessen, et al. (U.S. Patent No. 5,744,864).

Applicant respectfully traverses the rejection as follows.

With regard to Applicant's independent claim 1, as amended, the Cillessen reference appears to describe, "The semiconductor material is a degenerate semiconductor material" that is "provided with dopant atoms". (Abstract). However, from Applicant's review of Cillessen, the reference does not appear to show a channel contacting a drain electrode and a source electrode, where the channel includes one or more of a metal oxide including zinc-gallium, cadmium-gallium, cadmium-indium, and where at least one metal oxide of the channel is of an amorphous form.

In contrast, Applicant's independent claim 1, as amended, recites:

a channel contacting the drain electrode and the source electrode, wherein the channel includes one or more of a metal oxide including zinc-gallium, cadmium-gallium, cadmium-indium, and wherein at least one metal oxide of the channel is of an amorphous form.

Independent claim 14, as amended, recites:

means for controlling current flow electrically coupled to the drain electrode and the source electrode, wherein the means for controlling current flow is comprised at least partially of a channel in an amorphous form;

Independent claim 31, as amended, recites:

depositing a channel including the precursor composition to form a multicomponent oxide from the precursor composition contacting the drain electrode and the source electrode, wherein the multicomponent oxide is of an amorphous form;

Independent claim 36, as amended, recites:

providing a semiconductor device that includes a source electrode, a drain electrode, and a channel to electrically couple the source electrode and the drain electrode, a gate electrode separated from the channel by a gate dielectric, wherein the channel includes a multicomponent oxide including at least one metal cation from group 12, and at least one metal cation from group 13, wherein group 12 cations includes Zn and Cd, and group 13 cations includes Ga and In, to form at least one of a three-component oxide, a four-component oxide, and a two-component oxide that includes zinc-gallium oxide, cadmium-gallium oxide, cadmium-indium oxide, wherein at least one of the two-, three-, and four-component oxides is formed of an amorphous form;

In addition, independent claim 39, as amended, recites:

a channel contacting the drain electrode and the source electrode, wherein the channel includes one or more of a metal oxide including zinc-gallium, cadmium-gallium, cadmium-indium, and wherein at least one metal oxide of the channel is of an amorphous form;

As such, Applicant respectfully submits that each and every element and limitation of independent claims 1, 14, 31, 36, and 39 is not present in the Cillessen reference. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the 102 rejection of independent claims 1, 14, 31, 36, and 39, as well as those claims that depend therefrom.

Moreover, with regard to independent claim 31, as amended, the Examiner apparently takes Official Notice by stating, "If the product of a product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966." Applicant respectfully submits that the Cillessen reference does not disclose "wherein the multicomponent oxide is of an amorphous form", as recited in part in independent claim 31, as amended. Applicant respectfully submits that the Official Notice does not cure the deficiencies of the

Cillessen reference. As such, the final product of independent claim 31, as amended, is not the same as a product of the prior art, in particular, that of Cillessen. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection of independent claim 31, as amended, premised upon the *In re Thorpe* decision, as well as those claims that depend therefrom.

Claims 1-9, and 31-33 were rejected under 35 USC § 102(a) as being anticipated by Ohta, et al. ("Frontier of Transparent Oxide Semiconductors", Solid State Electronics, Vol. 47, No. 12, pgs. 2261-2267, December 2003). Applicant respectfully traverses the rejection as follows.

Applicant does not admit that the Ohta reference is indeed prior art and reserves the right to swear behind at a later date. Nonetheless, Applicant believes that the present application can be distinguished from the Ohta reference for at least the following reasons.

With regard to independent claim 1, as amended, the Ohta reference appears to describe, "Recent advancements of transparent oxide semiconductors (TOS) toward new frontiers of "oxide electronics" are reviewed". (Abstract). The reference does not show a channel contacting a drain electrode and a source electrode, where the channel includes one or more of a metal oxide including zinc-gallium, cadmium-gallium, cadmium-indium, and where at least one metal oxide of the channel is of an amorphous form.

In contrast, Applicant's independent claim 1, as amended, recites:

a channel contacting the drain electrode and the source electrode, wherein the channel includes one or more of a metal oxide including zinc-gallium, cadmium-gallium, cadmium-indium, and wherein at least one metal oxide of the channel is of an amorphous form.

In addition, independent claim 31, as amended, recites:

depositing a channel including the precursor composition to form a multicomponent oxide from the precursor composition contacting the drain electrode and the source electrode, wherein the multicomponent oxide is of an amorphous form;

As such, Applicant respectfully submits that each and every element and limitation of independent claims 1 and 31 is not present in the Ohta reference. Hence, the present disclosure has not been “described in a printed publication in this or a foreign publication, before the invention thereof by the applicant for a patent”, as stated in 35 U.S.C. 102(a). Accordingly, Applicant respectfully requests reconsideration and withdrawal of the 102 rejection of independent claims 1 and 31, as well as those claims that depend therefrom.

Moreover, with regard to independent claim 31, as amended, the Examiner apparently takes Official Notice by stating, “If the product of a product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966.” Applicant respectfully submits that the Ohta reference does not disclose “wherein the multicomponent oxide is of an amorphous form”, as recited in independent claim 31, as amended. Applicant respectfully submits that the Official Notice does not cure the deficiencies of the Ohta reference. As such, the final product of independent claim 31, as amended, is not the same as a product of the prior art, in particular, that of Ohta. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection of independent claim 31, as amended, premised upon the *In re Thorpe* decision, as well as those claims that depend therefrom.

§103 Rejection of the Claims

Claims 39-43, and 46 were rejected under 35 USC § 103(a) as being unpatentable over Kawasaki, et al. (U.S. Patent No. 6,727, 522) in view of Ohta, et al. (“Frontier of Transparent Oxide Semiconductors”, Solid State Electronics, Vol. 47, No. 12, pgs. 2261-2267, December 2003). Applicant respectfully traverses the rejection as follows.

As expressed above with regard to the 102(a) rejection of independent claim 1, as amended, the Ohta reference does not show “wherein at least one metal oxide of the channel is of an amorphous form.” Similarly, Ohta does not describe, teach,

or suggest, "wherein at least one metal oxide of the channel is of an amorphous form", as recited in part by independent claim 39, as amended.

The Kawasaki reference appears to describe, "A transistor is provided, which is entirely and partially transparent by the use of a transparent channel made of zinc oxide and the like." (Abstract). The reference does not show a channel contacting a drain electrode and a source electrode, where the channel includes one or more of a metal oxide including zinc-gallium, cadmium-gallium, cadmium-indium, and wherein at least one metal oxide of the channel is of an amorphous form.

In contrast, independent claim 39, as amended, recites:

a channel contacting the drain electrode and the source electrode, wherein the channel includes one or more of a metal oxide including zinc-gallium, cadmium-gallium, cadmium-indium, and wherein at least one metal oxide of the channel is of an amorphous form;

As such, Applicant respectfully submits that each and every element and limitation of independent claim 39, as amended, is not described, taught, or suggested in the Kawasaki and Ohta references, either individually or in combination. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the 103 rejection of independent claim 39, as amended, as well as those claims that depend therefrom.

Allowable Subject Matter

Claims 10-13, 34, 35, 44, and 45 were objected to as being dependent upon rejected base claims, but were indicated to be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicant gratefully acknowledges that the Examiner deems claims 10-13, 34, 35, 44, and 45 to contain allowable subject matter.

CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney Donald J. Coulman at (541) 715-1694 to facilitate prosecution of this matter.

At any time during the pendency of this application, please charge any additional fees or credit overpayment to the Deposit Account No. 08-2025.

CERTIFICATE UNDER 37 CFR §1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: **MS AMENDMENT** Commissioner for Patents, P.O. BOX 1450, Alexandria, VA 22313-1450 on this 13th day of July, 2006.

Sarah L. Reinhard
Name

Sarah L. Reinhard
Signature

Respectfully Submitted,
Randy L. Hoffman, et al.

By their Representatives,
BROOKS & CAMERON, PLLC
1221 Nicollet Avenue, Suite 500
Minneapolis, MN 55403

By: Edward J. Brooks III

Edward J. Brooks III
Reg. No. 40,925

Date: 7/13/2006